## Amendments to the Specification

Please amend the specification as follows:

Pursuant to 35 U.S.C. §120 and/or 35 U.S.C. 119(e), Applicants hereby claim ~~priority from presently copending~~ the benefit of U.S. Provisional Application No.60/313,604 entitled "MECHANICAL FASTENING SYSTEM HAVING ORTHOGONALLY ORIENTED ENGAGEMENT MEMBERS" and filed on August 20, 2001, in the names of Jason R. Cole, Denise R. Couture, Yvette L. Hammonds, Valerie R. Kurbec, Allan J. Krueger, Jason J. Manders, Shelley R. Rasmussen, David C. Strandberg, William G. Stratton, Manuel A. Torres, Jennifer A. Trottier, and Robert J. Waldron (Docket No. 16,508).

**Amend the paragraph beginning at page 2, line 15 as follows:**

According to the present invention, the first fastener component is oriented so its axis of substantially maximal engagement is generally orthogonal to the attachment direction. While the ~~inventors~~ invention should not be held to any particular theory of ~~operating~~ operation , it is believe that this configuration causes the first fastener component to become more interengaged with the cooperating fastener component as the article is subjected to various forces such as, for example, the type of forces encountered by the fastening system when used on a disposable personal care product that is worn.

**Amend the paragraph starting on page 8, line 19 as follows:**

In particular configurations, a majority of the plurality of non-isotropic engagement members have their engagement openings directed substantially orthogonal to an attachment direction. Generally speaking, the attachment direction is the direction in which the respective first and second portions of the article are brought together into an overlapping and interengaging relationship. Thus, in FIGS. 1A, 1D and ~~2~~ 1D' , the attachment direction is generally a direction having a cross-directional vector-component along the lateral direction 24 and toward the medial line 40 of the article. Accordingly, the plurality of non-isotropic engagement members would have their engagement openings directed substantially parallel with the medial line 40 of the article.

**Amend the paragraph starting on page 9, line 25 as follows:**

(Previously Amended) FIGS. 1A-E are illustrations of an exemplary sanitary napkin with fasteners 36 in the form of wings or flaps. More particularly, FIGS. 1A, 1D, 1D' and 1E show at ~~At~~ least one first fastener component 70 is attached to the wing 36 and at least one cooperating fastener component 72 is attached to the opposite wing 36. In some embodiments of the invention, the first fastener component 70 and the cooperating fastener component 72 may be attached to

each wing such that the wings may be fastened without concern for overlapping the wings in any particular order. In other yet embodiments, the wing may be formed partially or entirely of the cooperating fastener component 72. FIG. 1C is an illustration of the sanitary napkin with its wings 36 or flaps secured around an undergarment or panty "P". The arrows labeled "A" generally represent the attachment direction. The arrows labeled "O" generally represent the direction that is orthogonal to the attachment direction. It should be understood that this orthogonal direction is thought to be generally or substantially along or in the plane of the article although in some specific cases, it include a minor Z-direction component.

**Amend the paragraph starting at page 10, line 25 as follows:**

(Previously amended) The following is a brief description of the orientation direction with respect to the lengthwise, longitudinal direction 26 and the lateral cross-wise direction depicted in FIGS. 1A, 1D and 1D'. In one exemplary sanitary napkin, the ~~orienting~~ orientation of the axis of maximal engagement of the first fastener component in the attachment direction meant orienting the first fastener component so its axis of maximal engagement was in the cross-machine direction or the lateral cross-direction 24 shown in FIGS. 1A, 1D and 1D'. Thus, for that sanitary napkin, the ~~orienting~~ orientation of the axis of maximal engagement of the first fastener component generally orthogonal to the attachment direction meant orienting the first fastener component so its axis of maximal engagement was in the machine direction or the lengthwise, longitudinal direction 26 shown in FIGS. 1A, 1D and 1D'.

**Amend the paragraph starting on page 11, line 12 as follows:**

FIG. 2A is an illustration of an exemplary diaper with fasteners 36 in the form of tabs or ears extending from a waistband section of the diaper. At least one first fastener component is attached to the ear 36 and at least one cooperating fastener component 72 is attached to a corresponding portion of the diaper so that the diaper can be configured for wearing as shown, for example, in FIG. 2A B. The arrows labeled "A" generally represent the attachment direction.

**Amend the paragraph starting on page 11, line 18 as follows:**

The diaper 10' can typically include a porous, liquid permeable topsheet 28; a substantially liquid impermeable backsheet 30; an absorbent body structure 32 positioned and connected between the topsheet and backsheet; a surge management portion ~~46~~ located adjacent the absorbent structure; and a system of elastomeric gathering members, such as a system including

leg elastics 34 and waist elastics 42. The surge management portion is positioned in a liquid communication with an appointed storage or retention portion of the absorbent structure, and the topsheet ~~28~~, backsheet ~~30~~, absorbent structure ~~32,~~ surge management portion ~~46~~ and elastic members ~~34~~ and ~~42~~ may be assembled together into a variety of well-known diaper configurations. The diaper can additionally include a system of containment flaps ~~62,~~ and a system of side panel or ear region members ~~38,~~ which may be elasticized or otherwise rendered elastomeric.

**Amend the specification beginning at page 12, line 12 to page 14, line 13 as follows:**

The topsheet ~~28~~ and backsheet ~~30~~ may be generally coextensive, and may have length and width dimensions which are generally larger than and extend beyond the corresponding dimensions of the absorbent structure ~~32~~ to provide for the corresponding side margins ~~20~~ and end margins ~~22~~. Optionally, the topsheet and backsheet layers may not be coextensive. The topsheet ~~28~~ is operatively associated with and superimposed on backsheet ~~30~~, thereby defining the periphery of the diaper. The waistband regions comprise those portions of the diaper, which when worn, wholly or partially cover or encircle the waist or mid-lower torso of the wearer. The intermediate, crotch region ~~16~~ lies between and interconnects the waistband regions ~~14 and 12,~~ and comprises that portion of the diaper which, when worn, is positioned between the legs of the wearer and covers the lower torso of the wearer. Thus, the intermediate crotch region ~~16~~ is an area where repeated fluid surges typically occur in the diaper or other disposable absorbent article.

The backsheet ~~30~~ can typically be located along an outer-side surface of the absorbent body ~~32~~ and may be composed of a liquid permeable material, but desirably comprises a material which is configured to be substantially impermeable to liquids. For example, a typical backsheet can be manufactured from a thin plastic film, or other flexible, substantially liquid-impermeable material. As used in the present specification, the term "flexible" refers to materials which are compliant and which will readily conform to the general shape and contours of the wearer's body. Backsheet ~~30~~ prevents the exudates contained in absorbent body ~~32~~ from wetting articles, such as bedsheets and overgarments, which contact diaper 10. In particular embodiments of the invention, backsheet ~~30~~ can include a film, such as a polyethylene film, having a thickness of from about 0.012 millimeters (0.5 mil) to about 0.051 millimeters (2.0 mils). For example, the backsheet film can have a thickness of about 1.25 mil.

Alternative constructions of the backsheet may comprise a woven or non-woven fibrous web layer which has been totally or partially constructed or treated to impart the desired levels of liquid impermeability to selected regions that are adjacent or proximate the absorbent body. For example, the backsheet may include a gas-permeable, nonwoven fabric layer laminated to a

polymer film layer which may or may not be gas-permeable. Other examples of fibrous, cloth-like backsheet materials can comprise a stretch thinned or stretch thermal laminate material composed of a 0.6 mil (0.015 mm) thick polypropylene blown film and a 0.7 ounce per square yard (23.8 gsm) polypropylene spunbond material (2 denier fibers). A material of this type forms the outercover of a HUGGIES SUPREME disposable diaper, which is commercially available from Kimberly-Clark Corporation. The backsheet ~~30~~ typically provides the outer cover of the article. Optionally, however, the article may include a separate outer cover component member which is additional to the backsheet.

The backsheet ~~30~~ may alternatively include a micro-porous, "breathable" material which permits gases, such as water vapor, to escape from the absorbent body ~~32~~ while substantially preventing liquid exudates from passing through the backsheet. For example, the breathable backsheet may be composed of a microporous polymer film or a nonwoven fabric which has been coated or otherwise modified to impart a desired level of liquid impermeability. For example, a suitable microporous film can be a PMP-1 material, which is available from Mitsui Toatsu Chemicals, Inc., a company having offices in Tokyo, Japan; or an XKO-8044 polyolefin film available from 3M Company of Minneapolis, Minnesota. The backsheet may also be embossed or otherwise provided with a pattern or matte finish to exhibit a more aesthetically pleasing appearance.

In the various configurations of the invention, where a component such as the backsheet ~~30~~ or the containment flaps ~~62~~ are configured to be permeable to gas while having a resistance and limited permeability to aqueous liquid, the liquid resistant material can have a construction which is capable of supporting a hydrohead of at least about 45 cm of water substantially without leakage therethrough. A suitable technique for determining the resistance of a material to liquid penetration is Federal Test Method Standard FTMS 191 Method 5514, 1978, or an equivalent thereof.

The topsheet ~~28~~ presents a body-facing surface which is compliant, soft-feeling, and non-irritating to the wearer's skin. Further, the topsheet ~~28~~ can be less hydrophilic than absorbent body ~~32~~, and is sufficiently porous to be liquid permeable, permitting liquid to readily penetrate through its thickness to reach the absorbent body. A suitable topsheet layer ~~28~~ may be manufactured from a wide selection of web materials, such as porous foams, reticulated foams, apertured plastic films, natural fibers (for example, wood or cotton fibers), synthetic fibers (for example, polyester or polypropylene fibers), or a combination of natural and synthetic fibers. The topsheet layer ~~28~~ is typically employed to help isolate the wearer's skin from liquids held in absorbent body ~~32~~.

Various woven and nonwoven fabrics can be used for topsheet ~~28~~. For example, the topsheet may be composed of a meltblown or spunbonded web of the desired fibers, and may also

be a bonded-carded-web. The various fabrics can be composed of natural fibers, synthetic fibers or combinations thereof.

**Amend the specification beginning at page 14, line 18 to page 15, line 31 as follows:**

The topsheet fabrics may be composed of a substantially hydrophobic material, and the hydrophobic material may optionally be treated with a surfactant or otherwise processed to impart a desired level of wettability and hydrophilicity. In a particular embodiment of the invention, topsheet ~~28~~ is a nonwoven, spunbond polypropylene fabric composed of about 2.8 - 3.2 denier fibers formed into a web having a basis weight of about 22 gsm and density of about 0.06 gm/cc. The fabric can be surface treated with an operative amount of surfactant, such as about 0.28% TRITON X-102 surfactant. The surfactant can be applied by any conventional means, such as spraying, printing, brush coating or the like.

The topsheet ~~28~~ and backsheet ~~30~~ are connected or otherwise associated together in an operable manner. As used herein, the term "associated" encompasses configurations in which topsheet ~~28~~ is directly joined to backsheet ~~30~~ by affixing topsheet ~~28~~ directly to backsheet ~~30~~, and configurations wherein topsheet ~~28~~ is indirectly joined to backsheet ~~30~~ by affixing topsheet ~~28~~ to intermediate members which in turn are affixed to backsheet ~~30~~. Topsheet ~~28~~ and backsheet ~~30~~ can, for example, be joined to each other in at least a portion of the diaper periphery by suitable attachment mechanisms (not shown) such as adhesive bonds, sonic bonds, thermal bonds, pinning, stitching or any other attachment technique known in the art, as well as combinations thereof. For example, a uniform continuous layer of adhesive, a patterned layer of adhesive, a sprayed pattern of adhesive or an array of separate lines, swirls or spots of construction adhesive may be used to affix the topsheet ~~28~~ to the backsheet ~~30~~. It should be readily appreciated that the above-described attachment means may also be employed to suitably interconnect, assemble and/or affix together the various other component parts of the articles which are described herein.

The absorbent body ~~32~~ provides an absorbent structure which can include a retention portion, such as the representatively shown absorbent pad composed of selected hydrophilic fibers and high-absorbency particles, for holding and storing absorbed liquids and other waste materials. The absorbent body is positioned and sandwiched between the topsheet ~~28~~ and backsheet ~~30~~ to form the diaper 10. The absorbent body has a construction which is generally compressible, conformable, non-irritating to the wearer's skin, and capable of absorbing and retaining body exudates. It should be understood that, for purposes of this invention, the absorbent body structure may comprise a single, integral piece of material, or alternatively, may comprise a plurality of individual separate pieces of material which are operably assembled together.

Various types of wettable, hydrophilic fibrous material can be used to form the component parts of absorbent body ~~32~~. Examples of suitable fibers include naturally occurring organic fibers composed of intrinsically wettable material, such as cellulosic fibers; synthetic fibers composed of cellulose or cellulose derivatives, such as rayon fibers; inorganic fibers composed of an inherently wettable material, such as glass fibers; synthetic fibers made from inherently wettable thermoplastic polymers, such as particular polyester or polyamide fibers; and synthetic fibers composed of a nonwettable thermoplastic polymer, such as polypropylene fibers, which have been hydrophilized by appropriate means. The fibers may be hydrophilized, for example, by treatment with silica, treatment with a material which has a suitable hydrophilic moiety and is not readily removable from the fiber, or by sheathing the nonwettable, hydrophobic fiber with a hydrophilic polymer during or after the formation of the fiber. For the purposes of the present invention, it is contemplated that selected blends of the various types of fibers mentioned above may also be employed.

**Amend the paragraph starting on page 16, line 17 as follows:**

The absorbent body structure ~~32~~ can comprise a matrix of hydrophilic fibers, such as a web of cellulosic fluff, mixed with particles of high-absorbency material. In particular arrangements, absorbent body ~~32~~ may comprise a mixture of superabsorbent hydrogel-forming particles and synthetic polymer meltblown fibers, or a mixture of superabsorbent particles with a fibrous coform material comprising a blend of natural fibers and/or synthetic polymer fibers. The superabsorbent particles may be substantially homogeneously mixed with the hydrophilic fibers, or may be nonuniformly mixed. For example, the concentrations of superabsorbent particles may be arranged in a non-step-wise gradient through a substantial portion of the thickness (z-direction) of the absorbent structure, with lower concentrations toward the bodyside of the absorbent body and relatively higher concentrations toward the outerside of the absorbent structure. Suitable z-gradient configurations are described in U.S.P. 4,699,823 issued October 13, 1987 to Kellenberger et al., the entire disclosure of which is incorporated herein by reference in a manner that is consistent (not in conflict) with the present description. Alternatively, the concentrations of superabsorbent particles may be arranged in a non-step-wise gradient, through a substantial portion of the thickness (z-direction) of the absorbent structure, with higher concentrations toward the bodyside of the absorbent body and relatively lower concentrations toward the outerside of the absorbent structure. The superabsorbent particles may also be arranged in a generally discrete layer within the matrix of hydrophilic fibers. In addition, two or more different types of superabsorbent may be selectively positioned at different locations within or along the fiber matrix.

**Amend the paragraph starting on page 20, line 19 as follows:**

With reference to Figs. 3 A-E, the appointed first fastener component 70 can include a material having engagement members (e.g. the shown hook members) which project away from a base or substrate layer ~~110~~. Each engagement member includes a generally, up-standing stem portion 58 and a securement element 60. The stem portion 58 has a fixed end region 43, and a distal end region 44 which, desirably, is contiguously joined with the fixed end region. The fixed end region of the stem portion is operably attached to the substrate layer ~~110~~, and the distal end region is operably attached to its corresponding, associated securement element 60. The stem portion 58 is sufficiently rigid to maintain the appointed upright positioning and the appointed directional alignment of the securement element 60 during the ordinary operation of the first fastener component in the fastener system. More particularly, the stem portion is sufficiently resistant to bending and twisting to operably maintain the desired upright positioning and directional alignment of the securement element. The substrate layer ~~110~~ has a substrate thickness ~~112~~, an engagement member surface ~~114~~, and an opposed substrate mounting surface ~~116~~. The selected engagement members are attached to the substrate layer ~~110~~, and project away from the engagement member surface ~~114~~.

**Amend the paragraph starting at page 21, line 26 as follows:**

An example of a suitable micro-hook material is distributed under the designations VELCRO HTH 829 and VELCRO HTH 851and is available from VELCRO U.S.A., Inc., a business having offices in Manchester, New Hampshire. VELCRO HTH 851 micro-hook material is shown in photomicrographs in FIGS. 6A and 6B. FIG. 6A is a top view (linear magnification of 45X) of the micro-hook material showing an example of the relative distribution of individual engagement members or elements. FIG. 6B is a perspective view (linear magnification of 50X) showing an example of the angled engagement members or hook elements. The micro-hook material can have hooks in the shape of angled hook elements, and can be configured with a hook density of about 264 hooks per square centimeter (about 1700 hooks per square inch); a hook height which is within the range of about 0.030 - 0.063 cm (about 0.012 - 0.025 inch); and a hook width which is within the range of about 0.007 to 0.022 cm (about 0.003 to 0.009 inch). The hook elements are molded onto a base layer substrate having a thickness of about 0.0076 - 0.008 cm (about 0.003 - 0.0035 inch), and the member of hook material has a Gurley stiffness of about 12 mgf (about 12 Gurley units). Other suitable hook materials can include VELCRO HTH 858 and VELCRO HTH 863 hook materials.

**Amend the paragraph starting at page 22, line 18 as follows:**

In the various aspects and configurations of the invention, the loop material can be provided by a nonwoven, woven or knit fabric. For example, a suitable loop material fabric can be composed of a 2 bar, warp knit fabric of the type available from Guilford Mills, Inc., Greensboro, North Carolina under the trade designation #34285, as well as other types of knit fabrics. FIG. 7 is a photomicrograph depicting an exemplary cooperating fastener member in the form of the loop material fabric available from Guilford Mills, Inc. Suitable loop materials are also available from the 3M Company, which has distributed a nylon woven loop under their SCOTCHMATE brand. The 3M Company has also distributed a linerless loop web with adhesive on the backside of the web, and 3M knitted loop tape.

**Amend the paragraph starting at page 22, line 26 as follows:**

The loop material may also include a nonwoven fabric having continuous bonded areas defining a plurality of discrete unbonded areas. The fibers or filaments within the discrete unbonded areas of the fabric are dimensionally stabilized by the continuous bonded areas that encircle or surround each unbonded area, such that no support or backing layer of film or adhesive is required. The unbonded areas are specifically designed to afford spaces between fibers or filaments within the unbonded area that remain sufficiently open or large to receive and engage hook elements of the complementary hook material. In particular, a pattern-unbonded nonwoven fabric or web may include a spunbond nonwoven web formed of single component or multi-component melt-spun filaments. At least one surface of the nonwoven fabric can include a plurality of discrete, unbonded areas surrounded or encircled by continuous bonded areas. The continuous bonded areas dimensionally stabilize the fibers or filaments forming the nonwoven web by bonding or fusing together the portions of the fibers or filaments that extend outside of the unbonded areas into the bonded areas, while leaving the fibers or filaments within the unbonded areas substantially free of bonding or fusing. The degree of bonding or fusing within the bonding areas desirably is sufficient to render the nonwoven web non-fibrous within the bonded areas, leaving the fibers or filaments within the unbonded areas to act as "loops" for receiving and engaging hook elements. Examples of suitable point-unbonded fabrics are described in U.S. Patent ~~Application Ser. No. 754,419~~ No. 5,858,515 entitled PATTERN-UNBONDED NONWOVEN WEB AND PROCESS FOR MAKING THE SAME, by T. J. Stokes et al., ~~and filed December 17, 1996 (attorney docket No. 12,232);~~ the entire disclosure of which is incorporated herein by reference in a manner that is consistent herewith. FIG. 8 is a photomicrograph (linear magnification 17X) depicting an exemplary cooperating fastener member in the form of a pattern unbonded nonwoven web generally as described in U.S. Patent No. 5,858,515. As is evident from

the photomicrographs, a plurality of discrete, unbonded areas that are adapted to engage the engagement members are surrounded or encircled by continuous bonded areas.